

What is claimed is

1. A semiconductor structure, comprising:

a substrate;

5 a source area formed in the substrate;

a drain area formed in the substrate and comprising  
a doping of a first conductivity type, wherein the drain  
area comprises a first drain portion having a first doping  
concentration and a second drain portion having a second  
10 doping concentration, wherein the first doping  
concentration is higher than the second doping  
concentration, wherein the second drain portion includes a  
first region comprising a doping of a second conductivity  
type which is different to the first conductivity type;

15 a second region formed in the substrate below the  
second drain portion and comprising a doping of the first  
conductivity type; and

a channel area in the substrate between the source  
area and the second drain portion.

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2. The semiconductor structure according to claim 1,  
wherein the second region in the substrate is formed such  
that the second region is substantially opposite to the  
first region in the second drain portion.

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3. The semiconductor structure according to claim 1,  
wherein the doping concentration of the second region is  
higher than the doping concentration of the second drain  
portion.

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4. The semiconductor structure according to claim 1,  
wherein the first region is embedded in the second drain  
portion.

5 5. The semiconductor structure according to claim 1,  
wherein the first region is formed in the second drain  
portion such that the first region is exposed at a surface  
of the substrate.

6. The semiconductor structure according to claim 1,  
wherein the first region is floating.

10 7. The semiconductor structure according to claim 1  
wherein the first region is connected to a reference  
potential.

15 8. A method for manufacturing a semiconductor structure,  
comprising:

- (a) forming a gate structure on a substrate;
- (b) forming a source area having a doping of a first  
conductivity type in the substrate;
- (c) forming a drain area having a doping of the  
20 first conductivity type in the substrate by forming a  
first drain portion having a first doping concentration  
and a second drain portion having a second doping  
concentration which is lower than the first doping  
concentration, wherein the second drain portion is  
25 arranged between the first drain portion and the gate  
structure;
- (d) forming a first region in the second drain  
portion by introducing a doping of a second conductivity  
type into the second drain portion;
- 30 (e) forming a second region below the second drain  
portion in the substrate by introducing a doping of the  
first conductivity type.

9. The method according to claim 8, wherein steps (d) and (e) are performed using the same mask.

10. A semiconductor comprising:

- 5           a substrate;
- a source area formed in the substrate and having a doping of a first conductivity type;
- a drain area formed in the substrate and displaced from the source area, the drain area comprising a first
- 10       drain portion having a doping of the first conductivity type and a first doping concentration and a second drain portion having a doping of the first conductivity type and a second doping concentration lower than the first doping concentration, the second drain portion being disposed
- 15       between the first drain portion and the source area;
- a first region formed in the second drain region, the first region having a doping of a second conductivity type which is different than the first conductivity type;
- a second region formed below the second drain region
- 20       and having a doping of the first conductivity type;
- a channel area in the substrate between the source area and the drain area.

11. The apparatus of claim 10 wherein the second region

25       has a doping concentration higher than the second drain portion.

12. The apparatus of claim 10 wherein the second region is disposed substantially below the first region in the

30       substrate.

13. The apparatus of claim 12 wherein the second region does not extend below the channel area.

14. The apparatus of claim 12 and further comprising a gate structure formed on a surface of the substrate above the channel and wherein the second drain portion does not extend substantially below the gate structure.

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15. The apparatus of claim 14 wherein the doping concentration of the second region is higher than the doping concentration of the second drain portion

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16. The apparatus of claim 15 wherein the second drain portion is substantially flat.

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17. The apparatus of claim 16 wherein the first region is embedded in the second drain portion and the depth and doping concentration of the second region compensates for the increased resistance resulting in the second drain portion resulting from the depth and doping concentration of first region embedded therein.

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18. The apparatus of claim 12 wherein the first region and second region form an area of dual implantation.

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19. The apparatus of claim 12 wherein the depth and doping concentration of the second region compensates for the increased resistance resulting in the second drain portion resulting from the depth and doping concentration of first region disposed therein.

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20. The apparatus of claim 12 wherein the second drain portion is flat.